



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/544,296

08/03/2005

Takashi Amemiya

1217-051236

1511

28289

7590

05/30/2006

THE WEBB LAW FIRM, P.C.  
700 KOPPERS BUILDING  
436 SEVENTH AVENUE  
PITTSBURGH, PA 15219

EXAMINER

HU, HENRY S

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/544,296	Applicant(s) AMEMIYA ET AL.	
	Examiner Henry S. Hu	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on Pre-Amendment of August 3, 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2-21-2006</u> . | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1713

### DETAILED ACTION

1. It is noted that USPTO has received an **IDS** (one page) filed on February 21, 2006. It is also noted that USPTO has received **Pre-Amendment** filed on August 5, 2005. **Claims 1, 4 and 7 were amended, while new Claims 8-11 were added.** To be more specific, Parent Claim 1 was amended to use "crosslinking", while Claims 4 and 7 were corrected on multiple claim dependency. The examiner **accepts Applicants' drawing in 2 sheets with 2 figures** (BD is on page 15). **Claims 1-11** with only one independent claim (Claim 1) are now pending. An action follows.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1713

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. The limitation of parent **Claim 1** in present invention relates to **a fluororubber sealant composition** comprising: *100 parts by weight of a fluororubber, which is a copolymer having a crosslinking site derived from a bromine-containing and/or iodine-containing compound, capable of crosslinking with peroxide and having a component unit composition comprising: (a) 20-23% by mol of perfluoromethyl vinyl ether, (b) 60-70% by mol of vinylidene fluoride, (c) 10 to 20% by mol of tetrafluoroethylene, (d) 0 to 10% by mol of hexafluoropropylene (based on 100% by mol of the total of the component units (a) to (d)), and (e) a small amount of a bromide and/or iodide unsaturated fluorohydrocarbon component unit as a crosslinking site; and, based on 100 parts by weight of the fluororubber, 2 to 50 parts by weight of a bituminous fine powder; 0.5 to 6 parts by weight of an organoperoxide; and 1 to 10 parts by weight of a polyfunctional monomer.* See other limitations of dependent **Claims 2-11**.

4. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albano et al. (US 5,639,838), Kaspar et al. (US 6,864,336) or Grootaert et al. (USPG-PUB 2003/0236370 A1), each individually in view of Schmiegel et al. (US 3,933,732) or Apotheker et al. (US 4,214,060).

Regarding the limitations of parent **Claim 1, each of Albano, Kaspar and Grootaert** has disclosed preparation of a peroxide-curable composition to be useful as **making sealing components** (see “838” at column 1, line 14, see “336” at column 1, line 19). It includes the claimed terpolymer of TFE/VDF/PMVE which carries the claimed monomer ratio and the required Br- and/or I- substituent (see “838” at abstract, line 1-6 and column 1, line 63 – column 2, line 22 for terpolymer; see Br- and/or I- cure site for peroxide curing on column 3, line 1-36), (see “336” at abstract, line 1-7 and column 2, line 50-61 for terpolymer; see Br- and/or I- cure site for peroxide curing on column 2, line 51 – column 16), (see “370” at paragraphs 25-29 and 32 (particularly see line 19) for terpolymer; see Br- and/or I- cure site for peroxide curing on paragraphs 36-37 and 44-45). With respect to the use of “**polyfunctional monomer**”, “838” has used polyfunctional chain transfer agent (column 3, line 11-27), “336” has used polyfunctional chain transfer agent (column 3, line 66 – column 4, line 10), “661” has used polyfunctional chain transfer agent (paragraph 40-41); the use of Br- and/or I-containing cure-site monomers can be also counted in this category.

5. Although **carbon black** has been used as filler or additive in the curable composition (see “838” at column 5, line 47 at Table 2; “336” at column 7, line 45; “661” at paragraph 59), **each reference is still silent about the addition of bituminous fine powder. Each of Schmiegel and Apotheker teaches that in the course of making peroxide-curable fluorinated composition, bituminous coal (Austin black) can be used together with carbon black (MT)** (see “732” at column 6, line 58-68; see “060” at column 16, line 29-31; column 8, line 11-14). By doing so, **such filler mixture** can be useful in the manufacture of cured articles so as to have many unique

Art Unit: 1713

properties as specified (see "060" at column 1, line 11-30; see "732" at column 1, line 14-44).

In some working cases, bituminous coal (Austin black) or carbon black (MT) can be used alone.

6. Therefore, one having ordinary skill in the art would have found it obvious to modify Albano, Kaspar or Grootaert's peroxide-curable composition by either **adding bituminous coal so as to be together with carbon black, or replacing carbon black filler with other carbon-rich material such as bituminous coal** based on functional equivalence and interexchangeability as both ways are taught by Schmiegel or Apotheker. By doing so, one would expect that all embodiments in the same genus would succeed; by using such filler mixture in the manufacture of cured articles will have many unique properties as specified. Additionally, more diversified products may be thereby obtained.

7. Regarding **Claims 2-6 and 8-9**, such a peroxide-curable composition has been disclosed to be very useful to make sealing components according to the disclosure or teaching from references. For instance, it may be used in the **fuel seal** due to unique **solvent resistance and volume swell** (see "336" at column 9, line 14-39; particularly see fuel at line 18).

Regarding **Claims 7 and 10-11**, it would be obvious that such cured articles will **inherently** carry such properties including TR- 10 value and swelling index since all of the curable compositions disclosed by references may comprise fundamentally the same or similar polymer and additive components as claimed by current application.

*Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a fluororubber sealant peroxide-curable composition comprising a copolymer of TFE/VDF/PMVE having a Br- or I- crosslinking site:

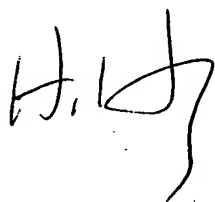
**USPG-PUB 2004/0037967 A1 to Feiring et al.** only discloses a coating system useful for plastic substrate. Such a coating system consists of terpolymer of VDF/TFE/PMVE (abstract, line 1-4; paragraphs 3-5). However, **no bituminous component or cure-site is disclosed or suggested for peroxide curing.** Therefore, Feiring fails to teach or fairly suggest the sealant composition of present invention.

9. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Art Unit: 1713

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

May 22, 2006



DAVID W. WU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700